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Original Articles

DUCTLESS GLAND THERAPY IN GYNECOLOGY AND OBSTETRICS.*

By SAMUEL WYLLIS BANDLER, A.B., M.D.,
New York.

Professor of Gynecology, New York Post-Graduate Medical School and Hospital.

I desire in this paper to go into no extended discussion of the physiological action of the various secretory glands of the body. Although we are yet in the early stages of our knowledge, in a general way their action is known. I simply hope to put in a few words the uses I make of the internal secretory products and the conditions for which I employ them.

It must be remembered that some glands underact and the primary condition rests with them; on the other hand, one gland may be inhibited by the overactivity or underactivity of some other gland. This explains the difference in action or of administration of drugs in many cases of apparently the same nature. If the thyroid or ovary for instance is under-acting and the condition is primary with them, we obtain splendid results by the administration of either the thyroid or the ovarian gland extract.

Of all the conditions in which we actively use extracts, the hyposecretion of the thyroid is most readily overcome at all periods of life. Whether in infancy, adolescence, puberty or during the menstrual life, or after the climacterium, thyroid extract produces brilliant results if given early enough and long enough. I have brought peace of mind, sanity and renewed physical vigor to many a depressed, melancholic and prematurely aged woman by the persistent use of thyroid extract. I have restored menstruation, overcome sterility and prevented

repeated abortion by its use. The administration of ovarian extract supplies most of what is needed by the body for the stimulation of menstruation. This is not the case with many of the other gland extracts nor is it always the case with the ovary; for even if we give the whole gland, there seem often to be lacking some of the products of which we are in need.

Valuable as are ovarian extract and corpus luteum for avoiding or diminishing flushes, there are certain cases, probably pluri-glandular, where no amelioration is obtained, especially if the annoyance is well-developed before we begin treatment. These neglected cases will not yield to thyroid, ovarin or corpus luteum, nor to hypodermics of corpus luteum extract. The vast majority are benefited. In many we accomplish a cure, but not in all. Any operative procedure which is followed by a cessation of menstruation should be followed by the continued administration of ovarian and corpus luteum extracts to avoid the onset of severe flushes and flashes. In the huge majority of these patients no marked untoward effect ensues.

If the ovary is underactive and the primary condition rests there, we get an excellent result by the administration of corpus luteum extract or particularly ovarian extract. This is well exemplified in lactation atrophy, where the simple substitution of ovarian extract will stimulate the ovary and supply what the system needs and restore menstruation within a relatively short space of time.

Cases of relative amenorrhea, or of late development of menstruation in young girls, or of exceedingly scanty menstruation in this type of case are benefited remarkably by the administration of thyroid extract and pituitrin combined with ovarin or corpus luteum. I believe that the pituitary gland is markedly associated with the process of menstruation. On the other hand, if the ovary is underactive because it is inhibited by the hyper-

* Read before the meeting of Obstetricians and Gynecologists at Newark, N. J., September 17, 1917.

activity of some of the other glands of the body, then the condition is not so readily overcome. When several glands are at fault and their allied inter-activity is the cause of the upset, of course the trouble is much more difficult to diagnose and to treat. This is the case with dystrophia adiposogenitalis, and we have to substitute not only ovarian extract but thyroid and pituitrin. We seek to discover and to regulate the gland which is inhibiting the ovary, for instance.

When we come to the opposite extreme, over-activity on the part of a gland, then we are confronted with the problem of substituting glands extracts opposed to the activity of the gland whose overactivity we are trying to correct. This problem is very complicated, not so ready of solution, and the results are by no means encouraging and certainly not so permanent. Obesity furnishes an interesting test for thyroid extract. In some instances small doses of half a grain three times a day, or perhaps at most five grains a day, will cause a remarkable reduction in weight. In others even larger doses have absolutely no effect on body weight, resulting only in headache and depression.

The most difficult class of patients is that known as dystrophia adiposogenitalis. Patients come to us for diminished menstruation and for sterility. I have learned to treat them for the sterility by the administration of ovarian extract and thyroid extract with pituitary gland extract. I also give them hypodermatically of corpus luteum extract and pituitrin, five minims, three times a week. This is continued for weeks at a time. The effect of this therapy is bound to be enhanced if a glass stem pessary is introduced, sewn into the cervix, and allowed to remain there for several months. These patients then menstruate for four or five days where formerly they menstruated for half a day or a day. As regards the sterility itself, these cases are not promising by any means.

The same method is followed in other cases of sterility. I advise the administration of ovarian extract, thyroid extract and pituitary extract accompanied by hypodermics of pituitrin and adrenalin or pituitrin and corpus luteum. The study of sterility has convinced me that we are on the wrong track in a very large proportion of cases. If spermatozoa are present, if the uterus and adnexa are normal as far as we can find, if inflammation is excluded, operations on the cervix and the uterus are

not the essential procedures to follow in very many instances. In these cases ovulation does not take place. Ripe ova are not produced—very often because the ovary is below normal in its development, and often enough because it is filled with corpus luteum cysts and atresic follicles which prevent the ripening and bursting of the monthly follicles. Therefore the proper method is to follow for several months the procedure which I have outlined, and if then no success be had, I advise an abdominal operation for making the ovaries normal. That is, the ovaries are split in two, all the retained corpus luteum bodies and the atresic follicles are removed and the ovary is carefully resewn. I have had several remarkable results in this type of patient, and I now conclude that we should consider cases of sterility in more than half of the instances as cases of *higher up pathology*, that is, higher than the cervix and the uterus.

In gynecology we are fortunately dealing with gland upsets which are temporary in many instances. They therefore yield to treatment. On the other hand, when the upset is a more stable one, one which is dependent upon a hereditary constitution or a marked involvement of any one gland as a sequel to inflammation or interglandular changes of a nature which we do not yet understand, results are problematical.

The thyroid and the pituitary gland are intimately concerned with the ovary. Affections of the ovary due to physical causes, sexual states affecting the ovary, thyroid and pituitary lead to abnormal activity of these glands and are productive of most of the nervous states usually considered as caused by "reflex" from the pelvic organs. I am voicing the inward feeling prompted by close observation over a period of many years when I say that the definite solution by our society of the real importance of the phrase "reflex" in gynecological diagnosis is one of our most important duties.

In giving gland extracts for any of the nervous upsets which are due to glandular overactivity or underactivity, we should by no means overlook the value of bromides, the glycerophosphates, chloral and the hypnotics. They are absolutely essential so far and probably will be for all time. They are fixed permanently in the pharmacopeia and I doubt if they ever can be displaced by any combination of gland extracts.

In nervous conditions associated with gynecol-

ogy, hyperthyroidism is a frequent causation. A careful study of the symptoms, digestive and otherwise, leads us inevitably to this conclusion. An accurate observation of the pulse-rate is of the greatest help. Diagnosis is definitely settled in many instances by the administration of thyroid extract, which even in small doses markedly intensifies the symptoms. The use of gland extracts for diagnosis is to be greatly valued. There are many pituitary cases, including those in which the pituitary is overactive and those in which it is underactive, in which the hypodermatic administration of pituitrin, with or without adrenalin, makes the diagnosis. The patient who is abnormally sensitive to a hypodermatic injection of pituitrin, who grows pale, feels the contractions of the uterus, and becomes shaky, is certainly a dyspituitary. My treatment of the nervous cases in which the diagnosis is hyperthyroidism is to give them ovarian extract plus quinine hydrobromide, plus bromides or chloralamide. The symptoms are often markedly improved. Of course with a local pelvic condition, especially with any abnormality of the ovary which irritates the thyroid, treatment is essential. I have recently been trying the hypodermatic use of pituitary extract and the internal administration of pituitary gland extract in these cases, and I must voice my opinion that in many instances the combination works beautifully. This is an interesting field for further observation, and I trust that the future will clear up the question more definitely.

In conditions marked by asthenia, adrenalin hypodermatically and especially the suprarenal extract by mouth, administered with the whole gland of the pituitary for weeks and months, will oftentimes bring about a remarkable result. Iron and arsenic when indicated by anemia are assential features in the treatment of this type, the arsenic being best administered hypodermatically in the form of cacodylate of soda (French). This line of treatment is followed by me in many, many cases post-partum. Many women take months before they recover their normal tone generally, and before the vagina, bladder and the pelvic structures have returned to the normal. I do not wait until months elapse and let the patient slowly run down hill before instituting this treatment. I begin it very shortly after the lying-in period is over, combining the general with the local methods until the patient is restored as closely to the previous state as possible.

During pregnancy the placental gland is antagonized by most of the glands of the body. The presence of this secretory substance upsets interglandular relations during pregnancy until the body forces bring about a balance in the majority of cases. After labor the placental element is removed and the interglandular balance must again be regulated. Hence there follow interglandular upsets of various sorts and often glandular exhaustion involving one or more or all of the ductless organs—hypothyroidism, more often hyperthyroidism, hypoadrenalism, pituitary anomalies which cause physical and nervous changes of the most varied forms. The restoration of menstruation, nursing, etc., are added factors and the wonder is that most women come out with flying colors. Pregnancy and labor bring out latent weaknesses, very often constitutional, frequently hereditary.

In uterine bleeding not due to the presence of a new growth in the uterus nor to overgrowth of the endometrium, we have in mammary gland extract and in thymus extract two excellent drugs. Thymus extract acts exceptionally well in the persistent menorrhagia of young girls. In the persistent bleeding around the menopause period in the form of what is known as fibrosis uteri, it works exceedingly well, especially when combined with ergotine and stypticin. After the vaginal operation for prolapse of the uterus one out of every eight or ten cases will show a persistent menorrhagia. In these cases thymus extract combined with ergotine and stypticin often are of the greatest value. There are certain cases, however, which drugs will not help, and here we use horse serum to great advantage. If these methods fail, of course, a vaginal hysterectomy or abdominal hysterectomy is the only method of value.

Much has been said of the value of mammary extract in large doses for fibroids of the uterus. In my hands, however, the method, while helpful in some cases, is not followed by very great benefit. I have had very excellent results in some instances with the x-ray method of treatment, tumors shrinking up and disappearing almost entirely, and even if not, bleeding ceases absolutely and often menstruation is abolished. However, the surgery of these tumors is after all the ideal treatment and I have no intention at present of giving up that method.

For the past few months I have been trying

placental extract both by mouth and by hypodermic. Its use is never followed by any uncomfortable effects. If given by mouth, or by needle, or by both, it has frequently a remarkable action in diminishing the pains of menstruation known as dysmenorrhea. However, it does not effect a cure. It is better than many of the other gland preparations which I have tried for this purpose. In some instances of undeveloped uterus, if given by mouth and by hypo., it seems to have a stimulative effect and to cause the uterus to grow larger.

All the gland extracts used for this purpose, that is, for dysmenorrhea or for hypoplasia, are not specific. I believe the pituitary gland has much to do with dysmenorrhea, and overaction of the pituitary gland at the menstrual period, when associated with the congestive action of the ovaries, will in many instances cause hypercontractions of the uterus and give rise to the uterine colic known as dysmenorrhea. The only permanent procedure of which I have any knowledge for the complete cure of dysmenorrhea is the dilatation, dissection of the cervix, and the insertion of a glass stem, which is sewed into the cervix. The value of placental extract in dysmenorrhea simply serves to call my attention to the role which the pituitary gland plays in that symptom, because I believe the placenta to be an antidote in a way to the pituitary gland, and I think that in the future, by a study of this condition, we may obtain good results in both the surgical and mental symptoms of hyperpituitarism by the continued use of placental gland extract.

In the field of obstetrics of course pituitrin by this time has met with great favor in the hands of many men, while others still fail to use it. I can only say that in my practice I have had no annoying results and believe it to be the most valuable drug in obstetrics in any of the stages of labor. However, in the post-partum stage I do not use pituitrin, giving either ergotole by mouth or aseptic ergot by needle immediately after the baby is born. As a result I have had no post-partum hemorrhages and am as devoted to the use of pituitrin as I have been heretofore.

I now try this drug with the added use of quinine and castor oil in some multigravidæ, giving

it a few days before the expected period, and it is very rare indeed that labor is not induced and does not go on normally within twenty-four hours. It has occasionally been tried on two successive days, but this has occurred in only a very small percentage of cases. So-called false labor pains, by the use of pituitrin, will often be found to be simply the preliminary labor pains, and in many cases where I have used it the patients have gone promptly into labor and have saved days of waiting and uncertainty.

However far gland therapy may have gone, however far it may go in the future, I do not believe that we are by any means ready to throw aside the drugs that we have been using for years. And this brings me to one of the important points of this paper, namely the fact that every gland extract administered therapeutically may have its value enhanced tremendously if we add to it one or other of the drugs which we have found by experience to be of service in the conditions with which we are confronted. When ovarian extract is given in relative or absolute amenorrhea, iron and arsenic are of the greatest value, having been given for years in these conditions before gland extracts came into our therapy. When we combine these two we get an enhanced result. When thymus extract or mammary extract, for instance, is given to overcome excessive bleeding, their value is enhanced tremendously by giving in combination some of the drugs used formerly, such as calcium, styp-ticin and particularly the various preparations of ergotole and ergotin.

By the administration of gland extracts and by noting the consequent effect, noting the aggravation in the annoyances, we are often aided in the diagnosis. From this standpoint, too, the value of the internal gland extracts cannot be overlooked. Therefore, coming back to the subject of our paper, I believe that any well informed physician must say that these extracts have taken an important and invaluable place in medicine if used properly, given in correct doses and for a sufficiently long period, and that their activity can be enhanced by the coadministration of other drugs well tried and well tested. I believe that we have made a tremendous advance in the treatment of many conditions confronting us

in gynecology and in obstetrics. There are certain conditions which we cannot unfortunately as yet correct, conditions due to overactivity of some of the internal glands.

134 West 87th Street.

BROKEN NECK.

By CHARLES E. HAWKES, M.D., Providence, R. I.

Broken neck, or fracture of the cervical vertebræ, must still be regarded as a very serious accident. In fact, a fracture of any portion of the spinal column between the cervical and sacral segments must be looked upon with gravity.

The bony spine differs from the long bones in its construction, since it is made up of a number of small, tough bones, with cushions of cartilage between the segments. This arrangement permits a fairly wide range of motion of the spine in all directions, and also allows the transmission of a strong force, either through its long axis or transversely. Mobility and strength are both important factors for the protection of the spinal cord.

The location of the bony spine adds still more to its strength and protection. The big back muscles and tough ligaments shield it behind, while in front the jaws, larynx, and esophagus in the cervical region, the ribs with the thoracic contents above and the abdominal wall and contents below, protect it securely in its dorsal and lumbar planes.

It can be easily understood, therefore, that its construction, location, and many natural protective structures, all aid in preventing it from being frequently fractured. It has been estimated that less than one per cent. of fractures occur in this portion of the body. The skull, jaws, ribs, arms, pelvis and legs usually suffer before the spine is injured.

The fact that so great a force is required to fracture any portion of the spine is the reason why the results are so often fatal. Not only does the bony spine suffer in such cases, but the spinal cord itself. In the great majority of instances the exertion of such a force crushes the bony fragments against the cord, or dislocates the segments, one upon the other, thus producing a damaging pressure on it. Most often, if not always, the damage to the cord takes place as soon as the terrific force is received. In some cases, resulting fatally too, concussion seems to be the cause of injury to the cord, for on operating, no dislocation of the seg-

ments nor depression of fragments is found, nor can any fresh blood or clots be detected under the meninges.

Operation, with its added shock, should not be decided upon too hastily, not at least until the x-ray demonstrates bony pressure from marked dislocation or fragments from the splintered bones. Such operations, at best, too seldom improve the final results in this class of patients, and occasionally may change a hopeful into a hopeless case.

The force which most frequently produces these fractures consists of falls, usually from a distance, upon some portion of the head or back; heavy objects falling from a height and striking some part of the spine, and crushes between two unyielding heavy objects.

The symptoms resulting from the accident declare themselves almost immediately, and it is the extent of the motor and sensory paralysis which governs the prognosis in practically all cases. A majority of the victims die as the result of their injury; a large percentage of the survivors are crippled, most of them perhaps permanently; and only a very small proportion of the whole number recover sufficiently to suffer no inconvenience and to be able to continue their usual vocations.

Broken neck comprises about one-third of the fractured spine cases. The break is more commonly located in one of the lower four vertebræ. This may be due to the anterior or forward bend in the spine in this location, which is increased to the breaking point by a fall or blow on the head, transmitted in the longitudinal axis of the column. As a result, the head is pushed forward in a straight line, or tilted to one side, the chin raised or lowered, and the back of the head lowered between the shoulders.

It is in these cases of cervical fracture that the arms often suffer partial or complete motor and sensory paralysis, and the respiration is more or less interfered with by paralysis of the diaphragm due to injury to the phrenic nerve.

The following case illustrates how a fracture of one of the cervical vertebræ, with only slight injury to the cord, may result in almost perfect recovery.

Mr. J. P. G., twenty-one years old, was admitted to my service at the Rhode Island Hospital, July 2, 1916. The afternoon before, he took a ten-foot "jack-knife" dive off a small wharf into water